

ELECTROCHEMISTRY LAB



INSTALLATION PLACE: Department of Microelectronics, NCSR “Demokritos”

DESCRIPTION: The electrochemistry lab comprises a chemical bench, a chemical storage closet with proper ventilation and electrical sourcing and measuring equipment. Teflon electrolytic cells are used to load both samples and electrolytes. Pt electrodes are used to bias with either current or voltage. Computer controlled electrical equipment including a current source, a voltage source, a power source and multimeters are used to source and measure the electrochemical processes for accurate and reproducible results

SPECIFICATIONS

1. Chemical bench for safe chemical handling
2. Chemical closet with ventilation for safe chemical storage
3. Different electrolytic cells for 3 and 4 inch Si wafers and small samples
4. Pt electrodes for 3 and 4 inch wafers and small samples
5. Current sources (100fA-10A)
6. Voltage sources (5 μ V-200V)
7. Power source (up to 1500W, 150V-10A)
8. Multimeters

EXPERTISE AND APPLICATIONS

1. Porous Si layer technology (thin and thick porous Si layers on the Si wafer, free standing porous Si membranes). Applications in thermal flow and gas sensors, in cooling devices, and in local RF shielding from the Si wafer by a thick porous Si layer. This last technology finds important applications in the integration of RF passive devices (transmission lines, inductors and antennas) on the Si wafer using conventional CMOS processing.
2. Porous anodic alumina on Si technology. Self-assembled porous alumina layers on Si with highly ordered pores are fabricated and used in the following: As masking layers for Si surface nanopatterning, as matrix for the growth of metal nanowires and dots and as the dielectric layer in MIM capacitors, memory devices etc.
3. Metal chemical or electrochemical deposition (metal thin films, nanowires in porous layers, nanodots), composite material formation.

CERTIFICATION/ACCREDITATION

The facility is not certified or accredited.

CONTACT PERSON

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